

REMARKS/ARGUMENTS

Overview of the Office Action

Claims 1-15 have been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over Campbell (U.S. Patent No. 6,452,599) in view of Traut (U.S. Patent No. 5,790,825). Claim 16 was also rejected by the Examiner although no grounds for the rejection of this claim were indicated in the Office Action (but will be presumed to be the same grounds for the rejection of Claims 1-15).

Status of the Claims

Claims 1-16 are pending.

Claims Rejected Under 35 U.S.C. § 103(a)

Claims 1-15 (and presumably Claim 16) have been rejected by the Examiner under 35 U.S.C. § 103(a) as unpatentable over Campbell (U.S. Patent No. 6,452,599) in view of Traut (U.S. Patent No. 5,790,825).

In order to establish a prima facie case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second there must be a reasonable expectation of success. Finally the prior art reference (or references when combined) must teach or suggest all the claim elements. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and cannot be based on applicant's disclosure. (MPEP §§ 2142, 2143.)

In regard to the first criteria (that there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings, and that the teaching or suggestion to make the claimed combination must be found in the prior art and cannot be based on applicant's disclosure), Applicants respectfully submit that neither Campbell nor Traut contain any suggestion or motivation to combine the reference teachings, and that it is only the Applicants' disclosure that provides any such motivation.

In the Office Action, the Examiner alleges that "the ability to emulate a VGA adapter in software means that platform specific VGA hardware does not need to be developed for different operating systems, only software emulation layer needs to be developed, which is cheaper and less expensive to develop and upgrade because all of the emulation is performed in software" is the motivation to combine the Campbell and Traut references. However, neither Campbell nor Traut teach or suggest any motivation, and thus the combination of these references is not warranted.

The invention of Campbell is directed to "a method and apparatus for generating a specific computer hardware component exception handler and emulating memory access to such a hardware component" (Campbell, col. 2, lines 52-55)—in other words, Campbell is directed to an **exception handler** for emulating a physical hardware component that is not present in a system. The invention of Traut, on the other hand, is directed to "a method for emulating guest instructions with host instructions, executable on a host computer, based on a translation scheme" (Traut, Abstract, lines 1-3)—in other words, Traut is directed to the translation of computer instructions that are not executable on a host computer system into instructions that are in fact executable on a host computer system.

In essence, Campbell is directed to hardware exception handling, and Traut is directed to software instruction translations. In light of these two disparate areas of art, Applicants respectfully submit that these references do not constitute analogous art as evidenced by the fact that the invention of each reference could operate on the same computer without any awareness or regard for the other, and neither reference provides any suggestion or motivation to incorporate invention aspects of the other reference nor to incorporate its own inventive aspects into the invention of the other reference.

In regard to the third criteria (that the prior art references or combination of references must teach or suggest all the claim elements), Applicants respectfully submit that nowhere does Campbell and Traut, separately or in combination, teach or suggest “emulating VGA hardware” as explicitly set forth in independent Claims 1, 2, and 6 of the present Application upon which Claims 3-5 and 7-16 depend.

As previously discussed, the invention of Campbell is directed to “a method and apparatus for generating a specific computer hardware component **exception handler** and emulating memory access to such a hardware component” (Campbell, col. 2, lines 52-55) (emphasis added). By “exception handler,” the invention of Campbell is referring to a software component that handles an exception caused by a failed call to a physical hardware device, this functionality being described as follows:

FIG. 2 illustrates the same computing system 10 as in FIG. 1 with the exception that **the VGA card 26 has been removed** from the video graphics processing module 20. In this embodiment of the computing system 10, the system memory 18 includes software for a video graphics exception handler 28. **As such, when the VGA card 26 is to be accessed, the central processing unit 12 performs the VGA exception handler software 28 to emulate the VGA card.** In essence, the VGA exception handler software 28 allows the central

processing unit to simulate a DOS box (i.e., a 640.times.480 VGA screen) to perform the same function as the VGA card. The VGA emulation is shown in greater detail with reference to FIG. 3.

(Campbell, col. 1, lines 36-49) (emphasis added).

In general, an exception occurs when an unanticipated situation in computer processing is encountered, including but not limited to program errors. For example, an exception would arise when an application attempt to call to a piece of hardware (e.g., VGA) that is not present in the system (i.e., missing or removed). When an exception occurs, the operating system attempts to locate any exception handling code that can deal with the specific exception and, if no exception handling code exists, a fatal exception is generated by the operating system and, in many cases, the application associated with the fatal exception is terminated. On the other hand, if an exception handler is found for a particular exception, then the exception handler executes in accordance with its programming.

In Campbell, the exception handler at issue is for VGA hardware that, when said VGA hardware is missing from the computer system, “emulate[s] memory accesses to [the missing] hardware component” (Campbell, col. 2, lines 51-55). However, as an exception handler, the invention of Campbell only executes when the VGA hardware is in fact missing, removed, etc., and the very mechanism for the Campbell invention—the exception handler—does not execute when there is no exception, that is, when VGA hardware is in fact present. Therefore, the invention of Campbell cannot “emulate” VGA hardware when in fact VGA hardware is present in the system.

In contrast, the invention of the present application is directed to “*emulating* VGA hardware” as part of an emulated computer system. The important distinction here is that an application running on an operating system in an *emulated* computer environment can call the

emulated VGA hardware directly, and not just as part of an exception handling routine, and the application program can avail itself of the emulated VGA hardware regardless of whether or not actual VGA hardware is present in the computer system. Thus “emulating VGA hardware,” as this term is used in the present application, is patentably distinct from merely mimicking the functionality of VGA hardware as part of an exception handling routine such as that disclosed by Campbell.

Traut is cited for reasons unrelated to the “emulating VGA hardware” and, as such, does not cure the shortcomings of Campbell. Therefore, Applicants respectfully submit that the combination of Traut and Campbell fails to teach or suggest each and every element present in independent claims 1, 2, and 6, as well as dependent claims 3-5 and 6-16 due to their dependency on the independent claims.

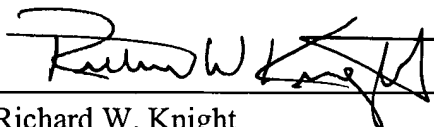
Based on the foregoing, Applicants respectfully submit that Campbell and Traut not only lack any suggestion or motivation to combine their respective references with the other, but that neither Campbell nor Traut, separately or in combination, teach or suggest emulated VGA hardware. Therefore, Applicants respectfully submit that Campbell and Traut, both alone and in combination, fail to render Claims 1-16 obvious under 35 U.S.C. § 103(a), and Applicants respectfully request that these rejections be withdrawn and that Claims 1-16 be allowed to issue.

CONCLUSION

Based on the reasons and rationale set forth herein, Applicants respectfully submit that the objections and rejections have been overcome and, accordingly, Applicants request that the objections and rejections be withdrawn and that the claims be allowed to issue. Should the Examiner have any questions, comments, or suggestions that would expedite the prosecution of the present case to allowance, Applicants' undersigned representative earnestly requests a telephone conference at (206) 332-1394.

Respectfully submitted,

Date: June 30, 2004



Richard W. Knight
Registration No. 42,751

Woodcock Washburn LLP
One Liberty Place - 46th Floor
Philadelphia PA 19103
Telephone: (215) 568-3100
Facsimile: (215) 568-3439